

Remarks/Arguments

Reconsideration of the above-mentioned application is respectfully requested. Claims 1-23 are presently in this application and claims 24-29 are now canceled in view of the species election. Claims 2, 6, 7, 13-16 and 18-21 were indicated to be allowable over the prior art if appropriately rewritten. The remaining claims were rejected over the art and such rejection is traversed for the reasons provided below.

The objection to claims 6 and 7, on the grounds that the maximum pressure gradient \propto lacked antecedent basis, is not believed to be well taken. Claim 1, on which claims 6 and 7 depend, calls for the step of causing the gas pressure in the inlet/outlet port of the face mask to rise from a minimum to a maximum during the inhalation phase. Such a pressure rise inherently results, not only in a pressure gradient or slope, but a maximum pressure gradient. Claim 6 identifies this maximum pressure gradient as \propto in keeping with the specification and Figure 7. Claims 1 and 6 provide a sufficient antecedent basis for the phrase in dispute.

Claim 10 has been amended to overcome the stated objection by changing “g load” to “g force”.

Independent claims 1, 12 and 17 were rejected as indefinite for failing to clarify what “the selected value” is to be. While applicant believes that the selected value is implicitly a g-force value the claims have been amended to state this specifically. In addition claim 11, at line 2, has been amended to substitute the words “higher” and “lower” for “faster” and “slower”, respectively, for grammatical reasons.

Claims 1-20 are now definite and in compliance with 35 USC §112.

Claims 1, 8, 9, 12, 17, 22 and 23 were rejected in the Office Action as being anticipated by Aldworth et al, U.S. Patent No. 5,199,426. With respect to independent claims 1 and 23 the Office Action stated that this reference teaches an apparatus (and method) for regulating the inhalation/exhalation of breathable gas to a pilot under g-load conditions which controls the inhalation/exhalation valves so that the gas pressure in the pilot's face mask rises from a predetermined minimum to a predetermined maximum during inhalation and visa versa during exhalation with the minimum pressure being less than the maximum pressure. This rejection is respectfully traversed.

The Aldworth et al system responds to altitude changes as well to g-force changes. Considering only g-force changes, the Aldworth system functions in a similar manner to the state of the art systems discussed in the background section of this application, i.e., by providing a substantially constant positive pressure (the pressure actually increases during exhalation) in the pilot's face mask during inhalation and exhalation. There is no decrease in the gas pressure in the face mask inlet/outlet during exhalation. Such a system places considerable stress on a pilot's system during exhalation for the reasons pointed out on page 3 of this application.

Specifically the breathing pressure control chamber 47 of Aldworth et al sets the pressure in the face mask in response to the cabin altitude via an aneroid capsule 56 and a g-load responsive valve (6:17-7:33).

During inhalation the pressure in inlet/outlet port 13 (hereinafter "inhalation pressure") is reduced slightly to allow the diaphragm 16, under the action of spring 67, to move downwardly and open the inhalation valve 33 and connect the port 13 to the gas inlet 11. During exhalation the pressure in the port 13 ("exhalation pressure") must be greater than the inhalation pressure in order

force the diaphragm 46 to move upwardly and close the valve 33, via the spring 38. (6:67-7:9). During this phase the excess exhalation pressure opens exhalation valve 65.

The Aldworth et al apparatus (and method performed thereby) functions in an entirely different manner than applicant's invention, i.e., in applicant's invention the gas pressure in the face mask decreases from a maximum to a minimum value to reduce the stress imposed on a pilot while the Aldworth et al apparatus, while maintaining a substantially constant face mask pressure for any given cabin altitude and g-load, inherently increases the gas pressure during exhalation. Indeed the inlet (demand) valve 33 would never close if the exhalation pressure did not exceed the inhalation pressure. In summary, the Aldworth et al does not control the inhalation/exhalation valves so that the pressure in the face mask rises from a predetermined minimum to a predetermined maximum during inhalation and then reverses this protocol during exhalation with the minimum pressure being less than the maximum. The exhalation effort required by the pilot is not decreased in the Aldworth et al apparatus. These claims are not only not anticipated by Aldworth et al, but represent a very significant improvement over the prior art including Aldworth et al. Claims 1 and 23 represent patentable subject matter and are now allowable.

In addition to the elements missing as discussed with respect to claim 1, claims 8 and 9 call for the inflation/deflation of an inflatable chest section in synchronism with the gas supplied to and withdrawn from the face mask. Applicant fails to discern this teaching in Aldworth et al. Claims 8 and 9 are also allowable.

The discussion of the inapplicability of Aldworth to claims 1 and 23 is equally applicable to claims 12, 17 and 22. These claims are also patentable over Aldworth et al and are in condition for allowance.

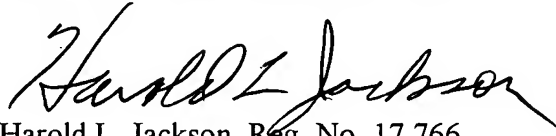
With respect to claims 3-5 there is no teaching in Aldworth et al of a predetermined minimum and maximum pressure. The pressure in the face mask remains substantially constant for any given altitude and g-load. Claims 3-5 are patentable.

With respect to claims 10 and 11, while Jaggars, U.S. Patent No. 4,219,039, discloses inflating an anti-g suit with pressure that is not linear with g-load, the reference does not disclose the elements missing from Aldworth discussed previously. Claims 10 and 11, dependent upon claim1, are also patentable.

Applicants have made a valuable contribution to the art and are entitled to the scope of protection afforded by the claims presently in this application and a notice of allowance is respectfully requested. If applicants' attorney can be of any further assistance, please call the undersigned at the number provided.

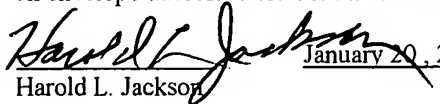
Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on January 20, 2004.



January 20, 2004
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